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ABSTRACT

This report compares two approaches to incentive motivation in 82 college juniors and seniors, average age 21 years. One method uses will as a motivator; the other method focuses on skill or effective strategy use for enhancing recall and understanding of a particular body of information. In the first approach, a semiweekly test or spotquiz was given on the information to be covered. It was theorized that studying voluntarily on a semiweekly basis for the tests would reflect the desire to obtain a higher grade after the material was covered; degree and nature of text processing would depend on the value of the incentive to the student. The second, or strategy approach, involved the use of a text-processing homework assignment on that same information to insure a comparable degree of cognitive engagement across conditions. In this case, processing would be guaranteed because it was assigned. Results demonstrated that taking spotquizzes on each chapter resulted in high procrastinators achieving significantly higher scores on the final exam than those students completing assigned chapter outlines; low and medium procrastinators differed only slightly in favor of spotquizzes on achievement across the two conditions. Spotquizzes provided a continuing basis for student motivation as they induced students to study on a daily or weekly basis, rather than postponing studying until the middle or the end of the course. For those students with a marked tendency to procrastinate, incentive motivation appears to provide the needed inducement to self-regulate. (Contains 18 references.) (NAV)

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Using Spotquizzes as an Incentive to Motivate Procrastinators to Study

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Many of the tasks and enterprises that individuals undertake are done voluntarily, that is, under their own self-control or self-regulation. Tuckman and Sexton (1990) have labeled acts which require that one exercise influence over one's own behavior, such as studying, dieting, or cleaning up after oneself, as *self-regulated performance*. These are important areas of performance, particularly in school, and it is thought that people possess "self-directive capabilities that enable them to exercise some control over their thoughts, feelings, and actions by the consequences that they produce for themselves" (Bandura, 1986, p. 335). However, people who are skeptical of their ability to exercise control over their behavior tend to undermine their own efforts to deal effectively with situations that tax or challenge their capabilities (Bandura , 1986).

The lack or absence of self-regulated performance has been labelled *procrastination*, the tendency to put off or avoid an activity under one's control (Tuckman and Sexton, 1989). It has been proposed that procrastination results from a combination of (a) disbelieving in one's own capability to perform a task (Bandura, 1986), (b) being unable to postpone gratification, and (c) assigning blame for one's own "predicament" to external sources (Ellis and Knaus, 1977; Tuckman, 1989). To accurately measure and predict the tendency to procrastinate, Tuckman (1991) developed the Procrastination Scale. Scores may be useful in helping those students who may have a tendency to procrastination to overcome it before it overcomes them.

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As one proceeds through school, the responsibility for control of one's own performance shifts progressively from parents and teachers to oneself, reaching a high point during the college years. The inability to overcome procrastination tendencies may be related to problems encountered by many college students, leading some to be on the lookout for effective strategies that may be used to help such students regulate their own learning (see, for example, Tuckman, 1990; Zimmerman, 1989). One such strategy, the use of tests to enhance incentive motivation as an inducement to overcome procrastination in regard to studying on a timely basis, was investigated in this study.

Incentives, or goal objects that we desire to attain or avoid, have figured prominently in a number of theories of motivation. In these theories the degree to which we desire the object is referred to as its incentive or reward value. These incentive theories of motivation suggest that people will perform an act when its performance is likely to result in some outcome they desire, or that is important to them, a consideration particularly relevant to procrastination. Behavior that is motivated or prompted by the desire to attain or avoid an incentive can be said to be the result of *incentive motivation* (Petri, 1991). Overmier and Lawry (1979) have theorized that incentive motivation can be regarded as a mediator between the stimulus characteristics of a situation containing a goal object and the responses that are directed toward that object. For example, in anticipation of a situation in which a person is required to perform, that person may expend considerable effort in preparation because of the mediation provided by the desire to achieve success or avoid failure. That desire would be said to provide incentive motivation for the person to expend the effort, particularly for a person who, in the absence of an incentive, has a tendency to procrastinate. Accordingly, a test, as a stimulus situation, may be theorized to provoke students to study as a response, because of the mediation of the desire to achieve success or avoid failure on that test.

Studying for the test, therefore, as opposed to procrastinating, would be the result of incentive motivation.

Pintrich and Schrauben (1992) review a large body of research that suggests that (1) the value of an outcome to the student affects that student's motivation, and (2) motivation leads to cognitive engagement, such engagement manifesting itself in the use or application of various learning strategies. If not directly taught to these students, the use of these strategies would suggest that they already exist in the student's repertoire. Thus, if enhancing incentive value or incentive motivation by itself actually improves outcomes, the explanation is likely to be that effective cognitive engagement has occurred. A technique for enhancing incentive value or promoting incentive motivation is to provide a situation that can be linked to performance incentives, or what Bandura (1986) refers to as "competency-contingent" incentives. Again, a test would seem to be a situation that is linked to the very performance incentives that a procrastinator requires to overcome procrastination.

An alternative technique for improving outcomes that require text-processing is to require the use of particular strategies that not only guarantee engagement, but assure that a particular approach is employed. One such strategy is the identification of main points or key terms, as in an outline, which can then serve as an advance organizer for subsequent text-processing (Mayer, 1987), or as a means of encoding or constructing meaning from text (Cook and Mayer, 1983). This approach has been shown to enhance recall and understanding (Weinstein and Mayer, 1986). However, this approach may not engender the same intensity of engagement, especially among procrastinators.

The study reported here had as its purpose the comparison of two approaches, one of which focused exclusively on "will" as a function of incentive motivation, the other

on "skill" or effective strategy use, for enhancing the recall and understanding of a particular body of information. The first or *incentive approach* was the use of a semiweekly test or spotquiz on the information to be covered. Studying voluntarily on a semiweekly basis for the tests was theorized to reflect the desire to obtain a high grade or avoid a low one (the incentive), thus representing incentive motivation. The degree and nature of text processing would depend on the value of the incentive to the student. It was compared to a *strategy approach*, specifically the use of a text-processing homework assignment on that same information, to insure, at a very minimum, a comparable degree of cognitive engagement across conditions. In this condition, processing of the text by students would be guaranteed because it was assigned. It would not depend on motivation.

Tuckman (1994) has shown that the incentive motivation approach using spotquizes has a greater impact on subsequent achievement than the homework approach, particularly among college students with low grade point averages. Based on that result, it was hypothesized that students in the test or spotquiz condition would outperform students in the homework condition, primarily because the test condition would enhance performance among procrastinators, based on the motivation to study on a timely basis induced by tests as a source of incentive motivation.

METHOD

Eighty-two juniors and seniors in college, all preparing to be teachers as either a major or a minor, participated in the study. The average age was 21, and two-thirds were women. They were enrolled in two sections of a six-week, summer educational psychology course required for teacher certification. A comparison of the two classes on age, gender, scores on the verbal and on the mathematics portion of the College Level

Academic Skills Test (CLAST), prior semester's GPA, and self-rated grade expectation showed them to be equivalent. Correlations between CLAST scores and achievement in this course have been found to be about .5 (Tuckman, 1993). Both sections met twice a week (at the same time of day), covered the same content (learning theories), and used the same textbook. Both were taught by the same instructor.

One class was given a seven-completion-item spotquiz (SQ) at the beginning of each class period, covering the textbook chapter assigned for that week. Items did not overlap in either style or content with the achievement tests. The quiz was projected via an overhead projector. Fifteen minutes were allowed for its completion. At the time of the spotquiz, no instruction had yet been given on the chapter covered. The only informational resource was the textbook itself. Following the spotquiz, students exchanged papers and the answers were gone over by the instructor so that students could grade one another's tests. Students were informed that the average of their spotquiz grades would count toward their final grade as much as the final achievement test.

The other class was given the homework assignment of preparing an outline (OUT) of the assigned chapter, covering major terms and their meanings, and arranged hierarchically. This approach is considered to be a cognitive strategy for extracting meaning from text (E. Gagne et al., 1984; King, 1992). Students turned in their outlines, and were graded on their quality. These grades were averaged and also counted as the equivalent of the final achievement test, the same as in the spotquiz condition.

Students completed the 32 item *Procrastination Scale* (Tuckman, 1991), shown in Figure 1, and were divided into high (79 and over), medium (68-78), and low (67 and under). Cutoffs were selected to produce approximately equal groups. The reliability of the scale was .86. The final achievement test contained 65 multiple-choice items, most of which measured conceptual, rather than factual, knowledge. The reliability of the test

was .77. Students were also required to keep a log of time spent either preparing for spotquizes or completing outlines, and turn this in on a weekly basis.

RESULTS

A two-way ANOVA was run on scores on the final achievement test with condition (Spotquiz vs. Outline) and Procrastination Score (high, medium. low) as the independent variables. The results of the ANOVA are shown in Table 1, and the means are shown in Figure 2. The main effect for condition was significant at the .01 level with Spotquiz students outperforming Outline students on the achievement test (76.8% to 71.7). The main effect of procrastination was not significant. The interaction between condition and procrastination was significant at the .05 level. A comparison of means revealed that while low and medium procrastinators differed only slightly on achievement across the two conditions (75.2% to 72.9 in favor of SQ for lows; 75.9% to 74.8 in favor of SQ for mediums), high procrastinators differed significantly in achievement across the two conditions (79.1% to 67.3 in favor of SQ). In other words, taking spotquizes on each chapter resulted in high procrastinators achieving significantly higher achievement test scores on the final exam than those completing outlines on each chapter. No such advantage based on spotquizes were found for non-procrastinators.

Time log scores for class preparation by students in the two conditions showed no significant difference. Students in both conditions reported an average of approximately two hours of preparation time per week.

DISCUSSION

Results of the study demonstrated that students who were given spotquizzes on each chapter outperformed students completing chapter outlines on a test of

achievement, and that the difference between the conditions was based primarily on the performance of procrastinators who were the students mainly profitting from the quizzes.

Since procrastination is regarded as a motivational problem, it is not unreasonable that its potential solution lies in the area of motivation. Procrastinators are difficult to motivate and, therefore, typically put off beginning a task. Procrastinators are likely to put off school assignments and studying until the last possible moment. They may study for exams, but cannot necessarily be counted on to keep up with assigned reading. As a result, their study burden immediately proceeding an exam that covers a number of chapters of assigned reading can be overwhelming.

Spotquizzes, as an instructional intervention, were found to provide a continuing basis for student motivation over an entire course. They induced students to study on a daily or weekly basis, rather than postponing it until the middle or end of the course. Moreover, completing homework assignments did not have the same impact on procrastinators as weekly spotquizzes, despite reporting spending an eqiuvalent amount of time completing assignments as studying for quizzes.

For those students who have a marked tendency to procrastinate, incentive motivation would appear to provide the needed inducement to self-regulate. Regular testing of assigned material appeared to be a necessary stimulus for causing serious and timely studying by those students who, when on their own, have a marked tendency to procrastinate.

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Table 1

ANOVA of Achievement Test Score by Condition (SQ/OUT) and Procrastination Level (Hi/Med/Lo)

Source	df	SS	MS	F
Condition	1	527.27	527.27	6.05**
Procras Level	2	63.28	31.64	0.70
Interaction	2	540.50	270.25	3.10*
Error	76	6625.53	87.18	

*p<.05, **p<.01

SSN _____ THAT'S ME/THAT'S NOT ME TEST

A. That's me for sure B. That's my tendency C. That's not my tendency D. That's not me for sure

___ 1. I needlessly delay finishing jobs, even when they're important.
___ 2. I postpone starting in on things I don't like to do.
___ 3. When I have a deadline, I wait till the last minute.
___ 4. I delay making tough decisions.
___ 5. I stall on initiating new activities.
___ 6. I keep putting off improving my work habits.
___ 7. I get right to work, even on life's unpleasant chores.
___ 8. I manage to find an excuse for not doing something.
___ 9. I avoid doing those things which I expect to do poorly.
___ 10. I put the necessary time into even boring tasks, like studying.
___ 11. When I get tired of an unpleasant job, I stop.
___ 12. I believe in "keeping my nose to the grindstone."
___ 13. When something's not worth the trouble, I stop.
___ 14. I believe that things I don't like doing should not exist.
___ 15. I consider people who make me do unfair and difficult thing to be rotten.
___ 16. When it counts, I can manage to enjoy even studying.
___ 17. I am an incurable time waster.
___ 18. I feel that it's my absolute right to have other people treat me fairly.
___ 19. I believe that other people don't have the right to give me deadlines.
___ 20. Studying makes me feel entirely miserable.
___ 21. I'm a time waster now but I can't seem to do anything about it.
___ 22. When something's too tough to tackle, I believe in postponing it.
___ 23. I promise myself I'll do something and then drag my feet.
___ 24. Whenever I make a plan of action, I follow it.
___ 25. I wish I could find an easy way to get myself moving.
___ 26. Even though I hate myself if I don't get started, it doesn't get me going.
___ 27. I always finish important jobs with time to spare.
___ 28. When I'm done with my work, I check it over.
___ 29. I look for a loophole or shortcut to get through a tough task.
___ 30. I still get stuck in neutral even though I know how important it is to get started.
___ 31. I never met a job I couldn't "lick."
___ 32. Putting something off until tomorrow is not the way I do it.

Figure 1. The Procrastination Scale (Tuckman 1991). For scoring: A=4, B=3, C=2, D=1 for all items except 7, 10, 12, 16, 24, 27, 28, 31, and 32 which are scored in the reverse direction (A=1, B=2, C=3, D=4). Higher score reflects greater procrastination tendency.

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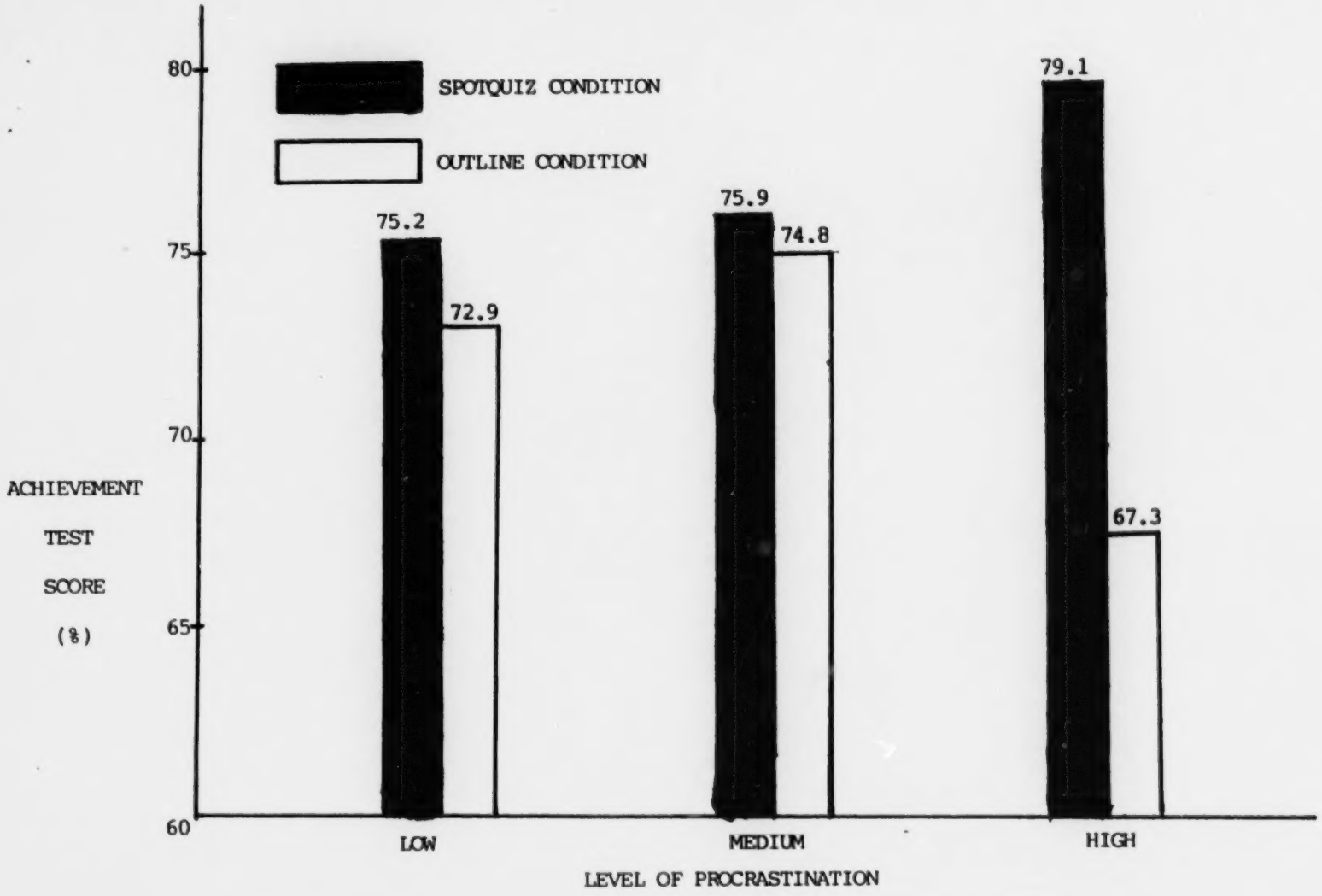

Figure 2. Mean test scores for the two treatment groups on the achievement test across the three procrastination levels.